

ROAD DESIGN NOTE

Guidelines for the placement of Tactile Ground Surface Indicators

1. Purpose

The purpose of this Road Design Note is to provide guidance for the design and installation of tactile ground surface indicators (TGSIs) having regard to *AS 1428.4 – Tactile Indicators*.

2. Scope

The information in this Road Design Note applies to road infrastructure projects being implemented under the Road System Development, Road Safety and Traffic and Transport Integration programs for Disability Discrimination Act Compliance works.

3. Tactile Ground Surface Indicators (TGSIs)

Tactile ground surface indicators provide cues to alert, guide and assist pedestrians on the urban street footway network who have a visual impairment.

The current *Australian Standard AS 1428.4 – 2002*, shows a number of typical layouts for TGSIs at intersections, bus stops and mid block treatments on the road network. This guideline is the primary reference for design principles associated with the installation of TGSIs within the road network.

The following sections summarise the main design principles and philosophy associated with providing TGSIs within the road network.

3.1 Warning TGSIs

Warning TGSIs are installed to advise pedestrians of potential hazards on the road network, such as:

- at a kerb ramp to warn where the footway ends and the road crossing point begins;
- at a ramp or ramp landing to warn of the change in grade;
- at steps / stairs / escalators; and
- at a change in direction on the footway which includes directional TGSIs.

Warning TGSIs are installed on the road network:

- at a setback of 300mm from line of kerb or edge of hazard. Note: Where the kerb ramp is skewed, the closest corner of the warning TGSIs will be setback 300mm from the line of kerb;
- in 2 rows of 300mm square tiles (i.e. 600mm wide) at kerb ramps;
- perpendicular to the direction of travel to the pedestrian crossing ; and
- in pads of 4 tiles (i.e. minimum 600 x 600mm) to indicate a change in direction on the footway.

3.2 Directional TGSIs

Directional TGSIs are installed on the road network:

- to give directional orientation to crossing points at intersections where the footway width is greater than 3m distance measured from the property boundary to top of kerb ramp;
- to give directional orientation to kerb ramp crossing points within a raised traffic island;
- to give directional orientation across an open area; and
- to give directional orientation to alert pedestrians of mid-block crossing points and at bus stops or tram/light rail stops.

Directional TGSIs are installed either:

- with a single row of tiles (i.e. 300mm wide) in the direction of travel between a "change of direction" plate and the top of a kerb ramp leading to a crossing point at an intersection or traffic island. Note: Where the grade of the kerb ramp is flatter than 1 in 8.5, the "Directional TGSIs" should continue down the ramp and finish at the "Warning TGSIs" block adjacent to the line of kerb.
- with 2 rows of tiles (i.e. 600mm wide) across a continuing footway to alert people following the building line of a change of direction to a mid block crossing point, bus stop or tram/light rail stop. Note: The width of the TGSIs ensures that the indicators will be detected as the typical width of a person's step is generally less than 600mm.

3.3 Change of direction plates

When there is a direction change on a footway, a warning indicator plate (minimum 600 x 600mm) is required to warn pedestrians of an impending movement on the footway. The change of direction plate is aligned and offset 300mm from the boundary line. If a walkway is surrounded by a different surface texture, then change of direction plates are not required as the edge of path will keep those with vision impairment on course.

3.4 Luminance Contrast (LC)

The luminance contrast relates to the light differential emitted from the surface of two adjoining surfaces. This aspect is important for pedestrians who have a visual impairment as they are able to see to some degree. The choice of tile colour is dependent upon the background pavement surface. Most manufacturers provide a table of luminance values for their products. The full surface TGSi tile and TGSi pin requires a LC of 30% and 45% respectively to that of the background material when installed.

4. Kerb ramps

The placement of warning TGSIs at kerb ramps should be orientated in the direction of travel with the ramp at a desirable maximum grade of 1 in 8.5. There should be no bull-nose on the line of kerb in order to allow for easy access/egress on the ramp for pedestrian movement, especially those in wheelchairs. Where possible, existing bull-noses should be ground down or re-concreted.

5. Median and traffic island cut throughs

Median and traffic island pedestrian openings are desirable at road surface level as this allows for easy access for users of wheelchairs and 3 or 4 wheeled mobility aids. Cut throughs provide an edge guide for pedestrians who have a visual impairment and eliminate the need for "change of direction plates" and "direction tiles" in traffic islands.

A desirable median width of 2.4m or more will enable two sections of warning TGSIs to be placed within the opening (i.e. one section adjacent to each carriageway and each setback 300mm from the line of kerb). On a narrow median (i.e. 1.2m to 2.4m), the two sections of warning TGSIs may be closer together or combined, but still remaining 300mm setback from each line of kerb.

Where kerb ramps are provided, rather than cut throughs, the landing area between the ramps should be a minimum length of 1200mm in the direction of travel.

6. Choice of installation

The current AS 1428.4 has a number of scenarios for TGSi installation at intersections, mid block crossings and bus stops. At existing intersections, the opportunity to reposition crosswalks may be minimal due to space restrictions. However, where a new intersection is

constructed, careful consideration should be given to the design aspects for *Disability Discrimination Act Compliance (1992)* as part of the design process.

The design criteria affecting the choice of treatment generally depends on the following factors:

- footpath width (i.e. building line to top of ramp);
- ramp gradient;
- width of kerb ramp to cater for pedestrian movements (i.e. wheelchair and pedestrian access);
- location of the kerb ramp crossing to cater for people travelling along the building line; and
- location of pedestrian push button on the signal pedestals at the kerb ramp crossing.

The installation of TGSIs is not required where the distance from the building line to the top of ramp is less than 3.0 metres and the ramp is steeper than 1 in 8.5. It should be noted that the kerb ramp should be on a direct continuation of the path of travel from the adjoining building line.

The installation of separate crossing points at intersection and mid block treatments is not favoured where the pedestrian is required to step off the kerb rather than use an adjacent kerb ramp to cross the road.

Many elderly people find stepping off and on the kerb difficult.

The following examples give typical treatments for TGSi installations at intersections and mid block treatments.

References

AS/NZS 1428.4: 2002. Design for access and mobility - Tactile indicators

Reference in Austroads Guide and VicRoads Supplements: NIL

Supersedes: Supersedes RDN 09-15 February 2005.

Approved by



PRINCIPAL ROAD DESIGN ENGINEER
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Contact

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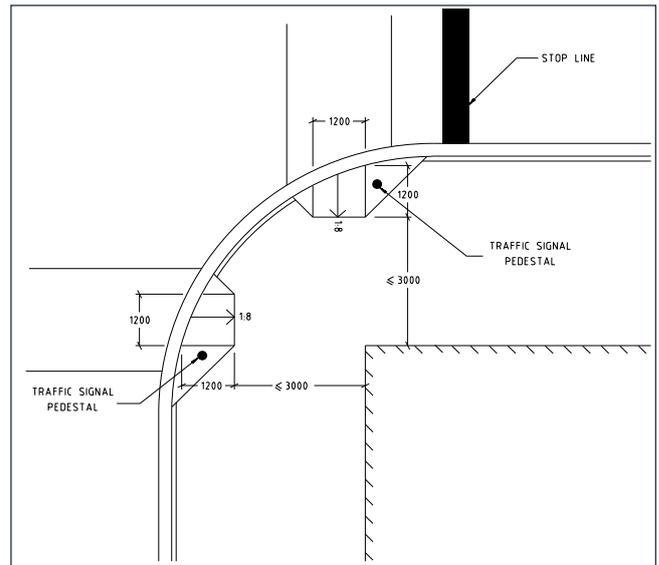
Email: technicalconsulting@roads.vic.gov.au

Road Design Notes are subject to periodic review and may be superseded.

Figure 1**Right angle intersection**

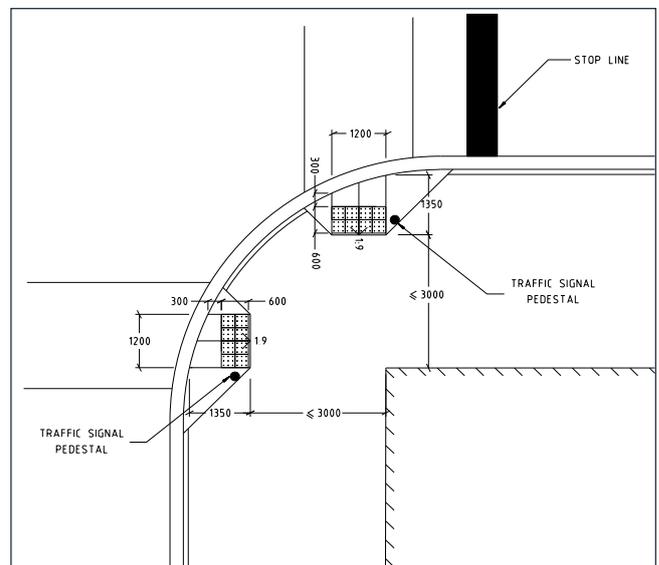
< 3000mm from property boundary to top of ramp

For kerb ramp gradients of 1:8.5 or steeper

**Figure 2****Right angle intersection**

< 3000mm from property boundary to top of ramp

For kerb ramp gradients flatter than 1:8.5

**Figure 3****Right angle intersection**

> 3000mm FOOTWAY

1: 8 (KERB RAMP GRADIENT)

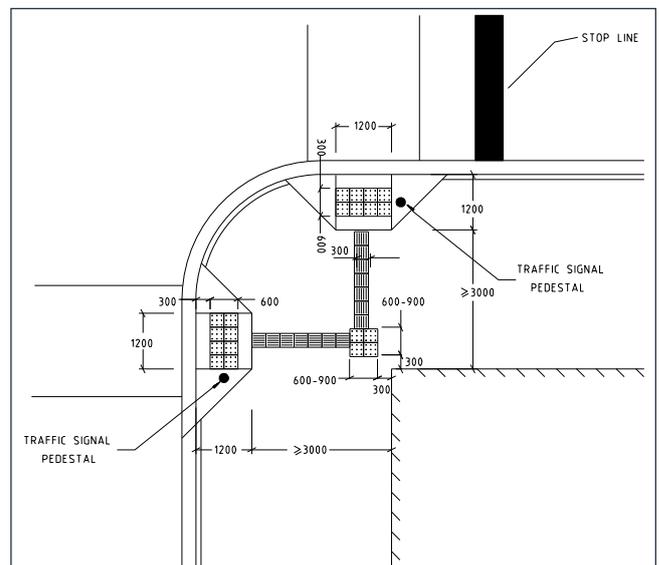


Figure 4
Mid-block crossing
 1:8 (Kerb ramp gradient)

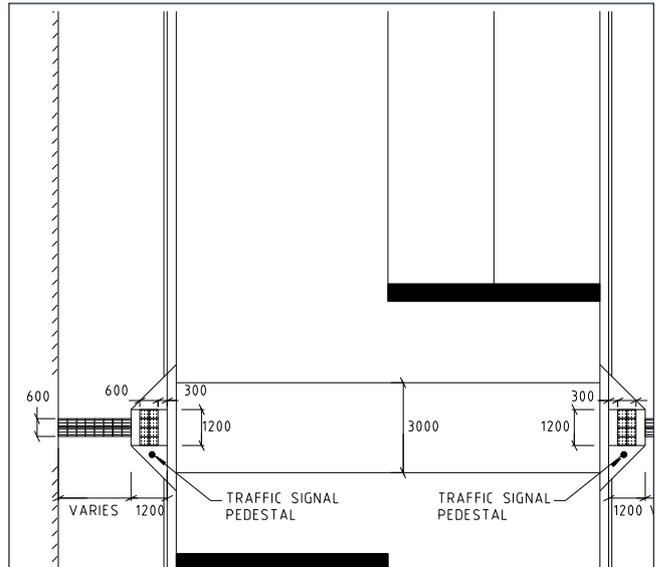


Figure 5
Right angle intersection
 1:8 (Kerb ramp gradient)

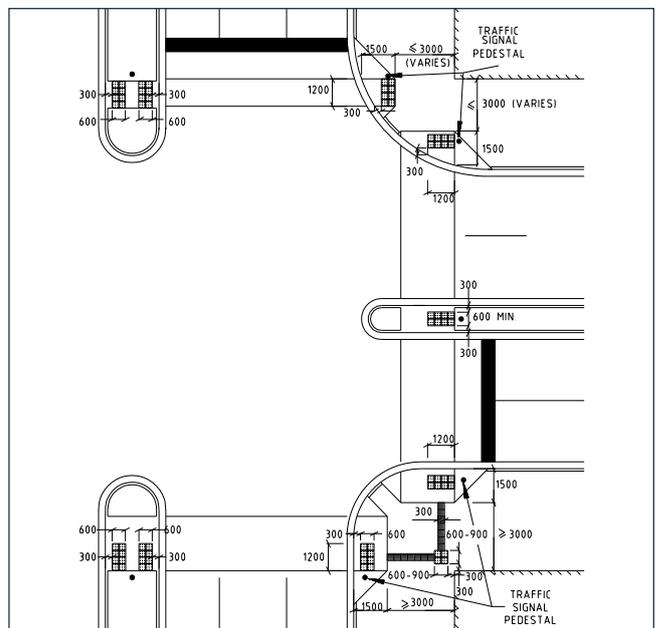


Figure 6
Kerbside
 Bus stop without shelter

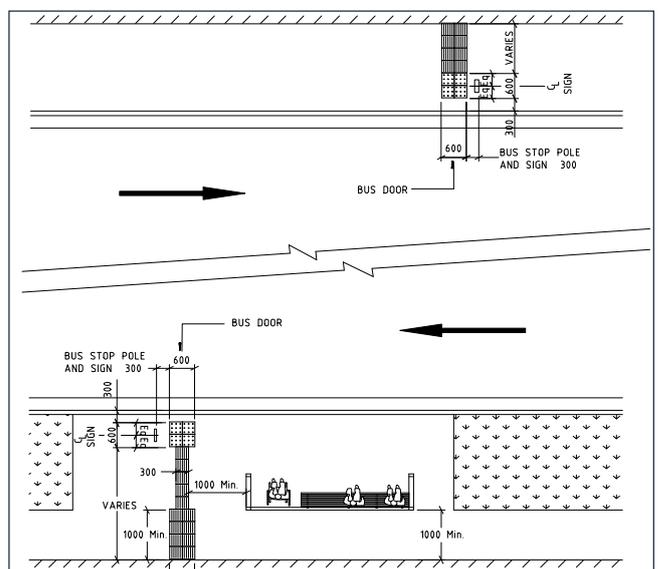


Figure 7
Kerbside
 Bus stop/tram light rail with shelter

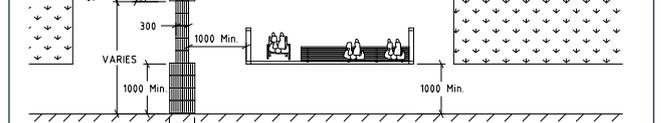


Figure 8

Slip road crossing with raised island

1:8 (KERB RAMP GRADIENT)

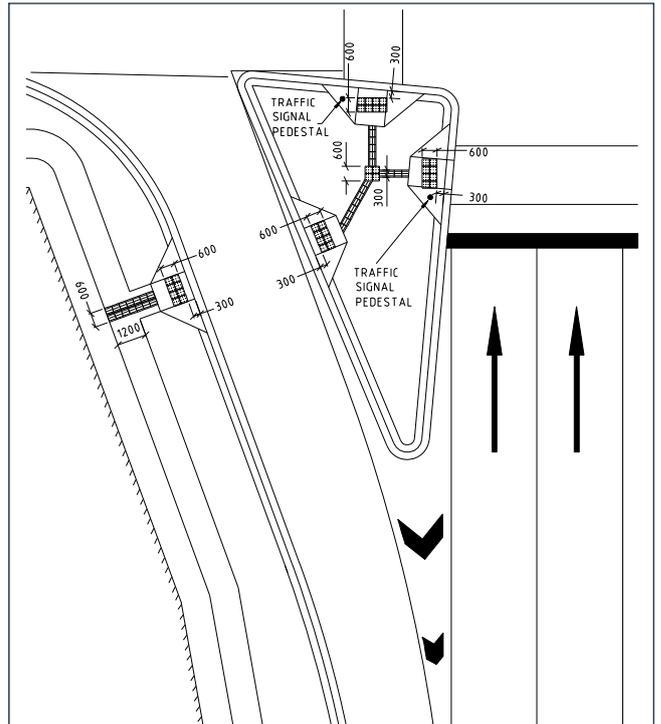
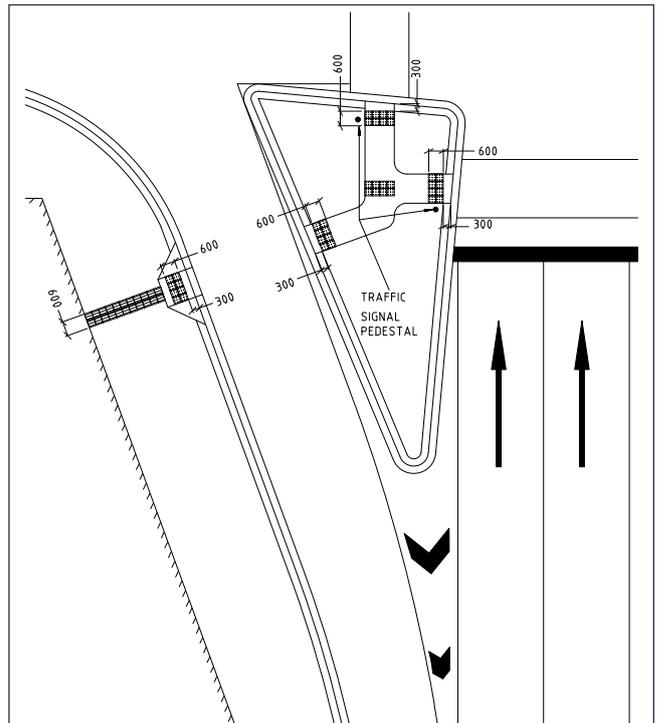


FIGURE 9

Slip road crossing with raised island

(CUT THROUGH)



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